



## Preliminary analysis of recycled fishing nets in construction materials

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## **Preliminary analysis of recycled fishing nets in construction materials**

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Marine plastic waste is a growing concern and is nowadays widely documented. One particular troublesome marine waste fraction is discarded fishing gear, which is about 18 % of the marine plastic debris [Andrady, 2011]. In the vulnerable Arctic environment, the impact of non-biodegradable waste materials can have severe consequences on the environment. A new international project, Circular Ocean, investigates possible ways of reusing discarded fishing gear in remote areas within the Northern periphery and Arctic (NPA) region in order to reduce discarded fishing gear as marine debris.

This PhD study is part of Circular Ocean and focus on finding new applications for the discarded fishing nets within the construction sector. The main idea is to use the nets as fiber reinforcement in different types of construction materials. Since the project focuses on remote areas within the NPA region, the developed products and solutions must be simple and possible to manufacture on-site.

During the recent years, plastic waste utilization in construction materials has become an attractive alternative to disposal and several studies have already shown that waste materials, such as plastic waste, can be used for reinforcement techniques of structural and non-structural materials in the construction sector [Siddique et al., 2008].

In this study, several types of both new and discarded fishing nets will be investigated, and mechanical and physical properties such as tensile strength, Young's modulus, deterioration rate at different pH's, thermal behavior and microstructure will be determined and compared. Next, experimental testing of building materials such as concrete and unfired bricks with different types, lengths and weight fractions of fibers of recycled fishing nets will be carried out.

Initial testing of concrete beams with fishing nets used as fiber reinforcement has been done, and the results showed that the fishing nets had a positive influence on the ductility of the concrete failure.

### **References**

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